



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/775,939

02/10/2004

Paul T. Spivey

2003-0705.02

3167

21972

7590

03/01/2006

LEXMARK INTERNATIONAL, INC.
INTELLECTUAL PROPERTY LAW DEPARTMENT
740 WEST NEW CIRCLE ROAD
BLDG. 082-1
LEXINGTON, KY 40550-0999

EXAMINER

SOLOMON, LISA

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,939

Applicant(s)

SPIVEY ET AL.

Examiner

Lisa M. Solomon

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/10/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "251" and "321" have both been used to designate heater chip, found on pgs. 10, line 30 and 11, line 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "321" has been used to designate both heater chip and ink via, found on pgs. 11, line 1 and 12, line 23. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

Art Unit: 2861

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Claim 6 is objected to because of the following informalities: the preamble "inkjet circuit or claim 1" is improper. In addition, claim 1 from which claim 6 depends is directed to an inkjet printhead not an inkjet circuit. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (5,414,454).

6. In regards to claim 1-3, Reid (454') discloses an inkjet printhead having a body (12), comprising: a heater chip attached to said body (12); a nozzle plate (16) on said heater chip, said nozzle plate having a periphery and plurality of nozzle holes (17); and an encapsulant bead (20) on said nozzle plate having a leading edge in a direction away from said periphery, said leading edge being less than about 500 microns from a closest one of said plurality of nozzle holes [Column 1 lines 17-32; 39-41, See Fig. 3].

7. Reid (454') does not disclose the leading edge having the distances from the closet nozzle hole as set forth in claims 1-3. However, it would have been obvious to

Art Unit: 2861

one of ordinary skill at the time the invention was made to optimize this distance for the purposes of simplifying the manufacturing process.

8. In regards to claims 4-5, Reid (454') discloses the inkjet printhead wherein said encapsulant bead (20) overlies a lead beam and a TAB circuit (18) [Column 1 lines 26-36].

9. In regards to claim 6, Reid (454') discloses the inkjet printhead further including a tape (40) on said nozzle plate (16), said tape (40) overlying each of said plurality of nozzle holes (17), said tape not touching said encapsulant bead [Column 2 lines 49-54].

10. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (454') in view of Farr et al. (6,634,732).

11. In regards to claim 7, Reid (454') disclose an inkjet printhead having a body (32), comprising: a heater chip on said body (12); a nozzle plate (16) on said heater chip, said nozzle plate (16) having a periphery and plurality of nozzle holes (17); and an encapsulant bead (20) on said nozzle plate (16) and overlying said periphery, said encapsulant bead (20) having a leading edge in a direction away from said periphery and toward said plurality of nozzle holes, said leading edge being less than about 400 microns from a closest one of said plurality of nozzle holes [Column 1 lines 17-32; 39-41, See Fig. 3].

12. Reid (454') does not disclose the distance the leading edge is from the nozzle hole. However it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize this distance for the purposes of simplifying the manufacturing process.

13. Reid (454') does not expressly disclose an encapsulant bead on nozzle plate overlying the periphery.

14. Farr (732') teaches in one embodiment that an encapsulant bead is dispensed along the periphery of the nozzle plate [Column 5 lines 9-15].

15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to be motivated to modify Reid (454') to accommodate the embodiment taught by Farr (732') for the purposes of protecting the electrical components of the TAB circuit (18).

16. In regards to claim 8, Reid (454') discloses the inkjet printhead further including a tape (40) covering each of said plurality of nozzle holes (17), said tape (40) not touching said encapsulant bead (20) [Column 2 lines 49-54].

17. In regards to claim 9, Reid (454') discloses the tape (40) covering the nozzle holes (17). Reid (454') does not disclose the inkjet printhead wherein an edge of said tape is more than about 50 microns from any of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at the time invention was made to optimize this distance for the purposes of properly covering the nozzle holes.

18. In regards to claim 10, Reid (454') discloses the encapsulant bead (20) and tape (40) as part of the printhead construction. Reid (454') does not disclose the inkjet printhead wherein said leading edge is in a range from about 100 to about 350 microns from said edge of said tape. However, it would have been obvious one of ordinary skill in the art at the time the invention was made to optimize this distance for the purposes of preventing contamination of the tape by the encapsulant material.

Art Unit: 2861

19. In regards to claim 11, Reid (454') discloses the inkjet printhead with a tape over the nozzle holes. Reid (454') does not disclose the inkjet printhead wherein said tape is a two layer tape having poly vinyl chloride and acrylic.

20. Farr (732') teaches conventional tapes constructed from a base film made from polyvinyl chloride with an acrylate based adhesive layer [Column 2 lines 22-28].

21. It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the tape disclosed in Reid (454') in two layers from the materials taught by Farr (732') for the purposes of a stronger tape.

22. In regards to claim 12, Reid (454') discloses the inkjet printhead wherein said tape has a narrow width portion shorter than a width of said nozzle plate [Column 2 lines 12-16].

23. In regards to claim 13, Reid (454') discloses the tape being attached to the nozzle plate of the printhead. Reid (454') does not disclose the tape being attached to the body.

24. Farr (732') teaches the tape attached to the body [Column 5 lines 19-24].

25. It would have been obvious to one of ordinary skill at the time the invention was made to be motivated to attach the tape disclosed in Reid (454') as taught by Farr (732') for the purposes of creating a stronger seal.

26. In regards to claim 14, Reid (454') discloses the encapsulant bead on the nozzle plate. Reid (454') does not disclose the inkjet printhead wherein said leading edge is in a range from about 200 to about 300 microns from said closest one of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at

Art Unit: 2861

the time the invention was made to optimize the distance of the leading edge of the encapsulant bead for the purposes of simplifying the manufacturing process.

27. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (5,414,454) in view of Farr (6,634,732).

28. In regards to claim 15, Reid (454') discloses an inkjet printhead having a body (12), comprising: a heater chip on said body (12); a nozzle plate (16) on said heater chip, said nozzle plate (16) having a plurality of nozzle holes (17); an encapsulant bead (20) on said nozzle plate (16); and a tape (40) on said nozzle plate (16) covering each of said plurality of nozzle holes (17), said tape (40) not touching said encapsulant bead [Column 1 lines 17-32; 39-41, See Fig. 3].

29. In regards to claim 16, Reid (454') does not disclose the inkjet printhead wherein said encapsulant bead has a leading edge less than about 500 microns from said any of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the distance of the encapsulant bead from the nozzle holes for the purposes of simplifying the manufacturing process.

30. In regards to claim 17, Reid (454') discloses the tape on the nozzle plate as well as covering the nozzle holes. Reid (454') does not disclose the inkjet printhead wherein an edge of said tape is more than about 50 microns from a closest one of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the distance of the edge of the tape for the purposes of properly covering the nozzle holes.

Art Unit: 2861

31. In regards to claim 18, Reid (454') discloses the encapsulant bead and the tape on the nozzle plate. Reid (454') does not disclose the inkjet printhead wherein said encapsulant bead has a leading edge in a range from about 100 to about 350 microns from an edge of said tape. However it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize distance between the leading edge of the encapsulant bead and the edge of the tape for the purposes of preventing contamination of the tape by the encapsulant material.

32. In regards to claim 19, Reid (454') discloses the inkjet printhead wherein said tape has a narrow width portion shorter than a width of said nozzle plate [Column 2 lines 12-16].

33. In regards to claim 20, Reid (454') discloses the tape being attached to the nozzle plate of the printhead. Reid (454') does not disclose the tape being attached to the body.

34. Farr (732') teaches the tape attached to the body [Column 5 lines 19-24].

35. It would have been obvious to one of ordinary skill at the time the invention was made to be motivated to attach the tape disclosed in Reid (454') as taught by Farr (732') for the purposes of creating a stronger seal.

36. Claims 21-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (5,414,454) in view of Farr (6,634,732).

37. In regards to claim 22, Reid discloses an inkjet printhead having a body (12), comprising: a heater chip on said body (12); a nozzle plate (16) on said heater chip, said nozzle plate (16) having a periphery and plurality of nozzle holes (17); an

Art Unit: 2861

encapsulant bead (20) on said nozzle plate (16) and overlying said periphery, said encapsulant bead (20) having a leading edge in a direction away from said periphery and toward said plurality of nozzle holes (17), said leading edge being less than about 400 microns in a distance perpendicular to said periphery from any of said plurality of nozzle holes; and a tape (40) on said body (12) and said nozzle plate (16) covering each of said plurality of nozzle holes (17), said tape not touching said encapsulant bead (20) [Column 1 lines 17-32;39-41, Column 2 lines 49-54].

38. Reid (454') does not expressly disclose an encapsulant bead on nozzle plate overlying the periphery.

39. Farr (732') teaches in one embodiment that an encapsulant bead dispensed along the periphery of the nozzle plate [Column 5 lines 9-15].

40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to be motivated to modify Reid (454') to accommodate the embodiment taught by Farr (732') for the purposes of protecting the electrical components of the TAB circuit.

41. In regards to claim 22, Reid (454') discloses the inkjet printhead wherein said tape has a narrow width portion shorter than a width of said nozzle plate [Column 2 lines 12-16].

42. In regards to claim 23, Reid (454') discloses the inkjet printhead wherein said encapsulant bead has an irregular boundary relative to said periphery [See Fig. 4].

43. In regards to claim 24, Reid (454') discloses the encapsulant bead on the nozzle plate. Reid (454') does not disclose the inkjet printhead wherein said leading edge is in

Art Unit: 2861

a range from about 100 to about 300 microns from said any of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the distance of the leading edge from the nozzle holes for the purposes of simplifying the manufacturing process.

44. In regards to claim 25, Reid (454') discloses the encapsulant bead on the nozzle plate. Reid (454') does not disclose the inkjet printhead wherein said leading edge is in a range from about 200 to about 300 microns from said any of said plurality of nozzle holes. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the distance of the leading edge from the nozzle holes for the purposes of simplifying the manufacturing process.

45. Claims 26-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (5,414,454) in view of (6,634,732).

46. In regards to claim 26, Reid (454') discloses an inkjet printhead having a body (12), comprising: a heater chip on said body (12); a nozzle plate (16) attached to said heater chip, said nozzle plate (16) having a periphery and plurality of nozzle holes (17); an encapsulant bead (20) on said nozzle plate (16) and overlying said periphery, said encapsulant bead (20) having an irregular boundary (See Fig. 4) with a leading edge extending in a direction away from said periphery and toward said plurality of nozzle holes (17), said leading edge being less than about 500 microns in a distance perpendicular to said periphery from any of said plurality of nozzle holes; and a tape (40) attached to said body (12) and said nozzle plate (16) covering each of said plurality of nozzle holes (17), said tape (40) not touching said encapsulant bead, said tape (40)

Art Unit: 2861

having a narrow width portion shorter than a width of said nozzle plate (16) [Column 1 lines 17-32; 39-41, Column 2 lines 49-54].

47. Reid (454') does not disclose the distance the leading edge is from the nozzle hole. However it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize this distance for the purposes of simplifying the manufacturing process.

48. Reid (454') does not expressly disclose an encapsulant bead on nozzle plate overlying the periphery.

49. Farr (732') teaches in one embodiment that an encapsulant bead is dispensed along the periphery of the nozzle plate [Column 5 lines 9-15].

50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to be motivated to modify Reid (454') to accommodate the embodiment taught by Farr (732') for the purposes of protecting the electrical components of the TAB circuit.

51. In regards to claim 27, Farr (732') disclose the inkjet wherein said tape further includes a wide portion longer than said width of said nozzle plate [See Fig. 2, element 200].

52. In regards to claim 29, Reid (454') discloses the inkjet printhead wherein said tape has a substantially rectangular shape and no portion thereof exceeds said width of said nozzle plate [See Fig. 3, Column 2 lines 12-16].

Allowable Subject Matter

53. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

54. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not suggest or teach "tape has one of an hourglass and an oar shape".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa M. Solomon whose telephone number is (571) 272-1701. The examiner can normally be reached on 8:00 am - 4:30 pm.

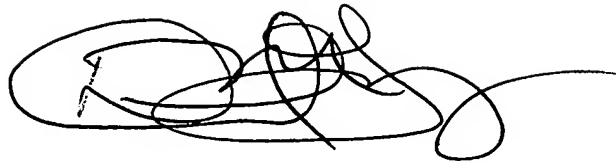
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/775,939
Art Unit: 2861

Page 13

LMS
02/24/2006

A handwritten signature in black ink, appearing to read 'DAVID M. GRAY', with a long horizontal line extending to the right.

DAVID M. GRAY
PRIMARY EXAMINER